



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10**

1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
ECOSYSTEMS, TRIBAL AND
PUBLIC AFFAIRS

April 6, 2012

Dan Castillo, Project Team Leader
Pomeroy Ranger District
71 W. Main Street
Pomeroy, Washington, 99347

Re: EPA Region 10 Comments on the South George Vegetation and Fuels Management Project
Draft Environmental Impact Statement (DEIS) (EPA Project Ref: 09-001-AFS).

Dear Mr. Castillo,

The EPA has reviewed the South George Vegetation and Fuels Management Project DEIS. We are submitting comments in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Under our policies and procedures, we evaluate the environmental impact of the proposed action and the adequacy of the impact statement. We have assigned an Environmental Concerns – Adequate (EC-1) rating to the DEIS. A copy of the EPA rating system is enclosed.

The Draft EIS documents the analysis of four alternatives, including a “no action” alternative. Each of the action alternatives considers timber harvest and fuel treatments within the South George planning area. The EPA is broadly supportive of the goals and objectives of the South George Project. In particular, we support improving the resilience and self-sustainability of the managed landscape.

Our EC-1 rating is based primarily on the need for additional information in Appendix D related to BMPs for shade retention. We also ask that the Forest consider revising its characterization of science related to riparian management. With respect to harvest prescriptions, we ask that the Forest build on the existing Historic Range of Variability (HRV) approach to include components of what has come to be referred to as “Ecological Forestry”. Finally, because the road decommissioning component in Alternative C would reduce road density and improve habitat value without compromising the recreational value of the project area, we encourage the Forest to bring forward the road decommissioning components of Alternative C, including the maintenance level change and seasonal closure of FR 4302.

Please see the attached comments for detail on each of the concerns highlighted above. We appreciate the opportunity to comment on the South George Project at this stage of the planning process. If you have any questions or concerns you may contact me at (206) 553-1601 or by electronic mail at reichgott.christine@epa.gov, or you may contact Teresa Kubo of my staff at (503) 326-2859 or by electronic mail at kubo.teresa@epa.gov.

Sincerely,

Christine B. Reichgott, Unit Manager
Environmental Review and Sediment Management Unit

Enclosures:

- (1) EPA Detailed Comments on the Little Slate Project Draft Environmental Impact Statement
- (2) Additional studies and modeling efforts that discuss the effect of harvest on stream shade and/or temperature
- (3) EPA Rating System for Draft Environmental Impact Statements

EPA DETAILED COMMENTS ON THE SOUTH GEORGE PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT

Riparian Science

Page 3-21 of the DEIS states that the action alternatives propose to conduct fuels treatments within two Riparian Habitat Conservation Areas (RHCA units 1 and 2). Given the limited extent of the proposed treatment (25 acres), and the need to address crown fire potential, the EPA does not object to the proposed treatment. We question, however, the decision to include references to the 1991 and 2007 studies (Caldwell et al. 1991, and Gravelle et al. 2007) in the context of demonstrating the likelihood of no temperature effect from treatment without also acknowledging the broader range of science on this topic. The EPA believes that impacts to shade and stream temperatures from timber harvest within 100 feet of streams have been widely demonstrated. As an attachment to this letter we are including a list of citations for studies and modeling efforts that address the interaction of stream shade, stream temperature, and riparian buffers. We encourage the Forest to consider this information in the design of future RHCA treatments.

Page 3-21 of the DEIS goes on to state that BMPs have been developed to address stream temperature increases due to the removal of riparian vegetation, and directs the reader to Appendix D. Our review of Appendix D finds reference to PACFISH/INFISH protocols, but no specific BMPs for protection of shade. We believe Appendix D would be an appropriate place to include the design criteria referenced on page 3-22 that would limit shade reductions to 10 percent (leaving an estimated 80 percent effective shade).

Ecological Forestry

The project proposes to use a mix of clearcut with reserves, improvement cutting, low thinning, seed-tree harvest and fuels treatments in order to put the project area on a trajectory toward desired future conditions (DFC). In order to achieve DFC, the action alternatives propose to move forest structure, species composition, and stand density toward their historical ranges of variability (HRV). Using historical references poses a challenge in a rapidly changing environment¹, but we agree that taking an HRV approach should result in a more resilient and self-sustaining landscape. We recommend, however, that the Forest consider how principles of what has come to be called “Ecological Forestry”² might be further incorporated into the harvest prescriptions.

For thinning/intermediate treatments, an Ecological Forestry approach looks beyond indicators of species composition, forest structural stages, and tree density classes to include an emphasis on spatial heterogeneity. This can be achieved through variable density thinning. We believe the Forest is already incorporating these principles, but we recommend that the FEIS be explicit about the Forest’s intent to use an Ecological Forestry approach, including variable density thinning, where practicable.

For regeneration and seed-tree units, an Ecological Forestry approach places an emphasis on biological legacy retention. This concept goes beyond coarse wood and snag retention to include a broader array of

¹ Keane, Robert E., Hessburg, Paul F., Landres, Peter B., and Fred J. Swanson. 2009. The use of historical range and variability (HRV) in landscape management. *Forest Ecology and Management* 258 (2009) 1025–1037

² Franklin, Jerry F., Mitchell, Robert J., and Brian J. Palik. 2007. *Natural Disturbance and Stand Development Principles for Ecological Forestry*. USDA Forest Service Northern Research Station. General Technical Report NRS-19.

organisms, organic matter (including structures), and biologically created patterns. We encourage the Forest to consider recent literature around these concepts as the FEIS is developed (Franklin et al. 2007¹, Johnson and Franklin 2009³, Johnson and Franklin 2012⁴).

Finally, a key tenet of Ecological Forestry is that of recovery periods, or allowing time for significant structural complexity to develop between rotations. We recommend that the FEIS include a discussion of future entry, and what is considered to be an appropriate recovery period.

Road Impacts

As noted in our scoping comments, the EPA favors minimizing road construction (including temporary road construction) because roads contribute more sediment to streams than any other management activity and interrupt the subsurface flow of water, particularly where roads cut into steep slopes. In addition, roads and their use contribute to habitat fragmentation, wildlife disturbance, and the introduction or exacerbation of noxious weeds.

We appreciate that the proposed action (Alternative B) would not result in the addition of any permanent roads to the road system. Alternative B does not, however, maximize the potential environmental benefit of the project by including road decommissioning. Alternative C was developed in part to respond to public concerns over roads within the project area. Because the road decommissioning component in Alternative C would reduce road density and improve habitat value without compromising the recreational value of the project area, we encourage the Forest to bring forward the road decommissioning components of Alternative C, including the maintenance level change and seasonal closure of FR 4302.

³ Johnson, K. Norman and Jerry F. Franklin. 2009. Restoration of Federal Forests in the Pacific Northwest: Strategies and Management Implications. Available at: <http://courses.washington.edu/esrm425/pdf/JohnsonExecutiveSummary.pdf>

⁴ Johnson, K. Norman and Jerry F. Franklin. 2012. Southwest Oregon Secretarial Pilot Projects on BLM Lands: Our Experience So Far and Broader Considerations for Long-term Plans. Available at: <http://courses.washington.edu/esrm425/pdf/JohnsonExecutiveSummary.pdf>

Additional Studies and Modeling Efforts That Discuss the Effect of Harvest on Stream Shade and/or Temperature

Field efforts investigating stream shade and temperature responses resulting from harvest activities at various “no-touch” buffer widths and thinned buffer regimes.

Groom J. D., L. Dent, L. and Madsen. 2011a. Stream temperature change detection for state and private forests in the Oregon Coast Range. *Water Resources Research* 47.

Groom J. D., L. Dent, L. Madsen, J. Fleuret. 2011b. Response of western Oregon (USA) stream temperatures to contemporary forest management. *Forest Ecology and Management* 262(8):1618-1629.

Jackson, C.R., C.A. Sturm, and J.M. Ward. 2001. Timber harvest impacts on small headwater stream channels in the Coast Ranges of Washington. *JAWRA* 37(6):1533-1549.

Janisch, J. E., S. M. Wondzell, and W. J. Ehinger. 2012. Headwater stream temperature: Interpreting response after logging, with and without riparian buffers, Washington, USA. *Forest Ecology and Management*, doi:10.1016/j.foreco.2011.12.035.

Kiffney, P. M., J. S. Richardson, J. P. Bull. 2003. Responses of periphyton and insect consumers to experimental manipulation of riparian buffer width along headwater streams. *Journal of the American Water Resources Association* 40:1060-1076.

Gomi T., D. Moore, and A.S. Dhakal. 2006. Headwater stream temperature response to clear-cut harvesting with different riparian treatments, coastal British Columbia. *Water Resour. Res.* 42:W08437.

Macdonald, J.S., E.A. MacIsaac, and H.E. Herunter. 2003. The effect of variable retention riparian buffer zones on water temperatures in small headwater streams in subboreal forest ecosystems of British Columbia. *Can. J. For. Res.* 33(8): 1371-1382.

Wilkerson E., J.M. Hagan, D. Siegel, and A.A. Whitman. 2006. The Effectiveness of Different Buffer Widths for Protecting Headwater Stream Temperature in Maine. *Forest Science* 52(3):221-231.

Kiffney, P. M., J. S. Richardson, J. P. Bull. 2003. Responses of periphyton and insect consumers to experimental manipulation of riparian buffer width along headwater streams. *Journal of the American Water Resources Association* 40:1060 1076. Location: Coastal British Columbia (49° Latitude).

Modelling efforts that investigated the effect of riparian buffer conditions on stream shade and water temperature conditions.

The Canton Creek modeling effort verified simulated base conditions with empirical data sets for surface and instream temperature (similar to BACI design).

DeWalle, David R., 2010. Modeling Stream Shade: Riparian Buffer Height and Density as Important as Buffer Width. *Journal of the American Water Resources Association (JAWRA)* 46(2):323-333.

Leinenbach, P, 2011. Technical analysis associated with this project to assess the potential shadow length associated with Riparian vegetation.

Science Team Review. 2008. Western Oregon Plan Revision Draft Environmental Impact Statement Science Team Review - www.blm.gov/or/plans/wopr/files/Science_Team_Review_DEIS.pdf

Oregon Department of Environmental Quality Memorandum. 2008. Modeling result reporting document: Evaluation WOPR FEIS Riparian Area Land Use Allocation. Obtained from Ryan Mitchie at ODEQ.

Cristea N., and J. Janisch. 2007. Modeling the Effects of Riparian Buffer Width on Effective Shade and Stream Temperature. Washington Department of Ecology Publication No. 07 03 028:1?64.

Field efforts which investigated the condition of the riparian stand resulting from both clearcut and thinning activities.

Chan S., P. Anderson, J. Cissel, L. Larson, and C. Thompson. 2004a. Variable density management in Riparian Reserves: lessons learned from an operational study in managed forests of western Oregon, USA. *For. Snow Landsc. Res* 78(1/2):151-172.

Chan S., D. Larson, and P. Anderson. 2004b. Microclimate Pattern Associated with Density Management and Riparian Buffers ? An Interim Report on the Riparian Buffer Component of the Density Management Studies.

Anderson P. D., D. J. Larson, and S.S Chan. 2007. Riparian Buffer and Density Management Influences on Microclimate of Young Headwater Forests of Western Oregon *Forest Science* 53(2):254-269.

Chan S.S., D.J. Larson, K. G. Maas-Herner, W.H. Emmingham, S. R. Johnston, and D. A. Mikowski. 2006. Overstory and understory development in thinned and underplanted Oregon Coast Range Douglas-fir stands. *Can. J. For. Res.* 36:2696-2711.

Brosofske, K.D., J. Chen, R.J. Niaman, J.F. Franklin. 1997. Harvesting Effects on Microclimatic gradients from Small Streams to Uplands in Western Washington. *Ecological Applications* 7(4):1188-1200.

Jackson, C.R., D.P. Batzer, S.S. Cross, S.M. Haggerty and C.A. Sturm. 2007. Headwater Streams and Timber Harvest: Channel, Macroinvertebrate, and Amphibian Response and Recovery. *Forest Science* 53(2):356?370.

**U.S. Environmental Protection Agency Rating System for
Draft Environmental Impact Statements
Definitions and Follow-Up Action***

Environmental Impact of the Action

LO – Lack of Objections

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987